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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/594,995      | 06/14/2000  | Masaki Katayama      | P/2171-185          | 7919             |

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EXAMINER

FAULK, DEVONA E

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2615

DATE MAILED: 03/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/594,995

Applicant(s)

KATAYAMA ET AL.

Examiner

Devona E. Faulk

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 16 and 18-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16, 18, 20 and 22 is/are allowed.
- 6) ☒ Claim(s) 19 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/25/2005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Remarks*

1. The applicant has cancelled claims 15 and 17. Claims 18 and 20 have been rewritten in allowable form. An art rejection was not supplied in the previous office action for claim 19, but upon further inspection the examiner has determined that claim 19 is not allowable and therefore a rejection follows.
2. Claims 1-15, 17 are cancelled.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claim 19** is rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art (Figures 11 and 12, page 1, line 14-page 4, line 3) in view of Sekine et al. (EP 0 563 929) in further view of Takeda et al. (JP 07-015395).

Regarding claim 19, the applicant's admitted prior art discloses an audio system (Figures 11 and 12) comprising:

a virtual speaker position operating part (rom, figures 11 and 12; page 3, lines 14-20);

a sending unit for sending DSP parameter data (the applicant's admitted prior art teaches of the DSP being under control of the CPU (reads on a central

processing unit; page 3, lines 3-4). as such, the CPU obviously has to send data to the DSP;

a memory for storing the DSP parameter (ROM, page 3, lines 21-22) data;  
audio signal terminals corresponding to sound sources, where audio signals from the sound sources are input through the audio signal terminals (Figure 11, t1-t4);

a selector (SL, figure 11) for selecting a sound source from among the sound sources;

a sound field processor for sound field processing the sound signal from the selected sound source using one of the DSP parameter data corresponding to the sampling frequency of the sound source selected by the selector (DSP, page 3, lines 3-8 and lines 17-20);

an output terminal, the audio signal processed by the sound field processor being output through the output terminal (TS, figures 11 and 12; page 3, lines 17-20);

The prior art however fails to disclose an adjustable positional of a virtual speaker and of the CPU detecting whether DSP data exists in a memory .

Sekine teaches of an adjustable positional of a virtual speaker being given through the virtual speaker position operation part (coefficient memory, 32; column 20, lines 32-42), of DSP data that includes data defining the adjustable position of the virtual speaker given through the virtual speaker operation part (column 20, lines 12-25 and 32-42).

Sekine further teaches of a central processing unit which detects whether the DSP parameter data exists in the memory and sets the sound field processor to a state of operation using the DSP parameter data in the memory, wherein the sound field processor processes the sound signal using the DSP parameter data store in the memory (column 20, lines 31-42).

The applicant's admitted prior art in view of Sekine fails to disclose that of DSP parameter data that is prepared for each of sampling frequencies.

Takeda teaches that of DSP parameter data that is prepared for each of sampling frequencies (paragraphs 0012-0014 under DETAILED DESCRIPTION section) and of a memory for storing the DSP parameter data being sent from a sending unit (conversion circuit ,8 ; paragraph 0018 under EXAMPLE section). It would have been obvious to modify the applicant's admitted prior art as modified by Sekine to have data that is sent to the DSP being DSP parameter data as taught by Takeda in order handle plural sampling frequencies in a digital signal processing system (see PURPOSE on abstract page).

5. **Claim 21** is rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art (Figures 11 and 12, page 1, line 14-page 4, line 3) in view of Sekine et al. (EP 0 563 929) in further view of Takeda et al. (JP 07-015395) in further view of Scofield et al. (US5,272,757).

Regarding **claim 21**, the applicant's admitted prior art as modified by Sekine and Takeda fail to disclose wherein the DSP parameter data includes constituent of a head relation transfer function for a right ear, constituent of a head related transfer function

for a right ear, constituent of a head related transfer function for a left ear and constituent representing difference between both ears with respect to time of arrival of an identical sound at both ears. Scofield teaches of HRTFs implemented in a DSP (column 3, lines 4-14). It would have been obvious to have the DSP parameter include HRTF and difference data representing a difference between both ears in order to allow the user to apply direction dependent equalization.

***Allowable Subject Matter***

6. Claims **16,18,20,22** allowed.

The following is a statement of reasons for the indication of allowable subject matter: Regarding claims 18 and 20, the applicant's admitted prior art discloses an audio system comprising a virtual speaker position operating part ;a sending unit for sending DSP parameter data (the applicant's admitted prior art teaches of the DSP being under control of the CPU as such; a memory for storing the DSP parameter data; audio signal terminals corresponding to sound sources, where audio signals from the sound sources are input through the audio signal terminals; a selector for selecting a sound source from among the sound sources; a sound field processor for sound field processing the sound signal from the selected sound source using one of the DSP parameter data corresponding to the sampling frequency of the sound source selected by the selector; an output terminal, the audio signal processed by the sound field processor being output through the output terminal. Prior art Sekine teaches of an

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adjustable positional of a virtual speaker being given through the virtual speaker position operation part, of DSP data that includes data defining the adjustable position of the virtual speaker given through the virtual speaker operation part. Prior art Takeda teaches that of DSP parameter data that is prepared for each of sampling frequencies and of a memory for storing the DSP parameter data being sent from a sending unit . Prior art Nishigori discloses a sound control unit with a display having pattern icons that are specifies a variation pattern showing a trace of variation in the localization position of a sound image. The prior art or combination thereof fails to disclose or make obvious the audio system further comprising a second memory which stores an initial state of the DSP parameter data, and wherein the sound field processor operates according to the DSP parameter data stored in the second memory when the DSP parameter data is missing in the first memory and wherein the sending unit comprises a display screen displaying a GUI image showing a virtual speaker item, a user adjusting the position of the virtual speaker by moving the virtual speaker time, the sending unit sending the DSP parameter data corresponding to the adjusted position of the virtual speaker by the user. Therefore the prior art or combination thereof fails to disclose or make obvious, an audio system as claimed in claims 18 and 20.

Claims 16 and 22 are allowable due to dependency on claims


**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Devona E. Faulk whose telephone number is 571-272-7515. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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